Diagnosing Executive Dysfunction in School-Aged Children

Recorded September 17, 2019

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SpeechPathology.com Course #9032

- [Amy] Once again, welcome to our webinar today, Diagnosing Executive Dysfunction in School-Aged Children. Our presenter today is Jill Fahy. She is an associate professor in the Department of Communication Disorders and Sciences at Eastern Illinois University, where she teaches graduate courses and acquired language disorders, cognitive communication and executive function disorders, diagnostic principles, and also an undergraduate course in neurology. Miss Fahy's clinical work focuses on the assessment and treatment of developmental and acquired executive dysfunction in school-aged children and young adults. Syncing diagnostic insight and recommendations for home, academic, social and vocational needs. Miss Fahy has presented on and authored books, materials and articles related to the evaluation and treatment of executive dysfunction, and the role of language in executive functions. So Jill, I'm going to hand over the floor to you. You can go ahead and begin.

- [Jill] Thank you so very much, Amy. And thank you for having me. And hello to everybody out there who is listening in this afternoon. I appreciate that you're here and I know you have busy work schedules. So we're going to just focus and move through this information and be on time as much as possible. So for this particular presentation and learner outcomes, as Amy said, I'm doing another webinar next Tuesday that focuses primarily on the relationships between executive functions and language. However, today's emphasis has to do with trying to identify the various features and profiles of executive dysfunction in school-aged children. That is, what does the problem look like exactly? And then trying to wrap our heads around some of the challenges in even evaluating and diagnosing executive dysfunction. It's not necessarily a quick simple process, which can be frustrating both time-wise and just in terms of wanting to decide then, of course, the question that everybody has is, what should we do about treatment? And how do we even begin to wrap our heads around that? And usually, I try to just start with trying to describe the problem itself. Who are these students that we're talking about? And how can we begin to sort through which

executive function is the problem, and which one might be the priority? So some of the challenges we face are that executive dysfunction in and of itself is a very heterogeneous problem. Any and all of these particular diagnoses will present with concomitant deficits in any or multiple executive functions. And so to say that a child has, quote, executive dysfunction, doesn't really help clarify the problem at all. And these are just a small sampling of diagnoses and disorders that have known identifiable concomitant deficits in the development of and the application of executive functions. And so often I'm starting there as I'm trying to identify, well, what's the underlying cause that might be interfering with this particular student? Most of the time people are describing to me the, I call them behind the scenes, privately I talk about them as the fails. And so I can't find homework, I can't find papers. This child is unable to shift or check their efforts, find their own mistakes that they don't intentionally mean to commit in work. Have difficulty identifying priorities, anticipating or estimating time, deciding when and how to start or what to even do.

I can't tell you how many times I've read an IEP where the goal is the child will use a planner and I just, oh my, how to use the planner is a multi-year process. Kids with executive dysfunction have difficulty understanding where to focus their attention, what kind of information is important, necessary? They have difficulty inhibiting their impulses and regulating behavior even if they understand and know and wish to adapt their behavior, they may not be able to. I often see kids who work diligently but are unable to work strategically and truly cannot anticipate the outcome of their efforts, although others in the environment may look at this and think, well, obviously that approach isn't going to work. And the other complication are that, often these students are described as really having minimal awareness that they even need help or needs strategies. Some of the shared features, however, are that overall by and large, children with executive dysfunction are disorganized and they themselves feel overwhelmed. And when you talk with them about it, at some point when they are able to allow themselves to settle into the idea that we're going to evaluate some of these things.

They have a high degree of anxiety about, they may know in depth what they're struggling with, they may not, they may only have a surface level of insight, but anxiety is prevalent. Underachieving, I often hear that described, teachers or parents will say that teachers have said, if they would only try harder, if you would only pay attention, if you would only do what I ask. And so the question is, is the student willfully refusing? Or is this an inability? Misunderstood, maybe sometimes the problem of executive dysfunction is perhaps oversimplified. And it can be complicated to try to identify how to provide support. The other shared features that are almost always noted are that kids with EDF tend to require a lot more support, more strategy, more environmental structure, more verbal direction than would be expected for that age. And this causes an immense amount of stress in parents. They're often told things like, you're doing too much, you need to step back, your babying your child.

And yet often the converse is true. If you pull the rug out from underneath kids with executive dysfunction, they are more likely to fail. So we have a lot of pressure to live up to expectations. Parents who aren't sure how to cope with or how to keep providing structure for an older sibling who's younger sister can do more than him or her. Or have family members who offer well meaning and well intentioned advice but may not entirely understand. And really the focus here is attempting to understand what it is the student is capable of doing, as opposed to still not yet able to self-regulate because they haven't developed those particular EFs skills.

On the other hand, a student who has, quote, good EFs, which are so often assumed, they may be described with much more subjectively positive comments and those students tend to have less anxiety and more self-confidence. This person works really hard, implying that the kids with EDFs don't. You're always on time, the implication are, well, then you must be lazy or you're not paying attention. So there's a lot of, I think, self-esteem that gets wrapped up in children who struggle to develop EF skills, they don't adapt as well. They may not be as socially adept. They tend to be underachieving

and they tend to require more support, not less. So we at least need to speak a little bit about what are executive functions and there are a variety of ways to explain and define them. In terms of looking at how we use our EFs, there are multiple cognitive and metacognitive processes, maybe as many as nine. And our goal is that as we mature and develop over the course of about 25 years, it takes for all of these EFs to come online to fully emerge, develop and become consistent, 25 years for that to happen. So that we can use all of those EFs to adapt to the unexpected, to adapt to the complex, to generate novel responses or novel behaviors that meet the needs in any particular context. EFs skills are those which come online and override routine. We are not talking about teaching a learned behavior. We are not talking about teaching a scripted response. EFs are what we use to adapt and adjust when it's unexpected, unplanned or complicated. And socially, for something which may be highly unpredictable. The other thing we need our EFs for is so that we can provide for internal, self-regulated behavior that's focused on a future goal, or achieving an expectation in the here and now.

EFs, however, are not the same as an intellectual quotient, it is not necessarily correlated to IQ. And in fact, there are a handful of articles and studies that are beginning to try to describe high IQ children who may not necessarily also have well developed EFs. Briefly speaking, and we could speak for an entire hour about each of these but briefly, if we look at these nine cognitive and metacognitive processes. So cognitively speaking, attention and working memory and inhibition are more of underlying cognitive processes. And we need foundations of attention, we need the capacity for working memory, we need our inhibitory control in order for us to layer on top of those these other particular skills of, I'm sorry, I'm just here playing with my cursor for a second, trying to make that appear, doesn't really matter. Let me go back and talk, oh there it is. So, for attention, if I spoke briefly for that for a minute. Attention is a complex cognitive process, it can be said to reflect your ability to direct all of your cognitive effort towards a particular stimulus or set of stimuli. Can you sustain attention

over time with the presence of background distraction, with the presence of competing or otherwise interesting stimuli? Are you able to not only sustain and selectively attend, but do you have the capacity to deliberately shift your attentional focus, deliberately do so between A, then B, then back to A? And finally, do you have the capacity to divide your attentional efforts between multiple A, B and C simultaneously? So attention is a complex, multifaceted cognitive process. And we would also speak about attention in terms of an auditory or a visual channel.

We also need to think about working memory which is a limited capacity to temporarily very briefly store information for a very short time with the intention of manipulating that information, whether I manipulate it to process or whether I manipulate it to consider whether I hold something in working memory so that I can think about potential outcomes, or organize a response. So working memory only gives us the opportunity to pause for a moment, to think for a moment, and then to gather up the rest of our plans, ideas and efforts so that we can execute. And working memory is very much dependent upon attention. We need to then also speak about inhibitory control. So inhibition in and of itself is the ability to run interference and inhibit responses towards irrelevant or competing or otherwise stimulating input.

I need to inhibit and override my responses so that I can delay them to a better and more appropriate time, so that I can inhibit a response entirely if it's never going to come at an appropriate time. So that I could inhibit maybe a pre-learned, pre-determined response in order to pause for a moment and generate a more situationally appropriate, novel, strategic plan. So inhibitory control only gives you, it's like hitting the pause button and it gives you an opportunity to notice, to consider, to anticipate, to strategize. If we then talk about fluency, and by this I mean, your ability to generate options, your ability to generate ideas, your ability to generate different ways of using what is available to you. So if you're stuck in the moment, and you need to come up with an alternative solution, an alternative idea, an alternative way to think

about a problem. How many different ways can you come up with to, if you're stuck in the woods and you have nothing but a tin can and a wooden spoon, what are you gonna do with these things? That's a crazy example. But how many ways can you think of to solve the problem? If you're not able to have good fluency and often this involves poor verbal fluency, poor divergent thinking, you're gonna be left with a minimal number of ways to approach something. Then we get into strategic planning. So strategic planning, and the ability to organize efforts, really means moving beyond trial and error. Making your efforts efficient in the way that you approach something with the reasonable expectation that this plan, this is strategic. This is a viable approach to how might I accomplish my end goal. Strategic plans are highly dependent upon reasoning.

You cannot anticipate an outcome unless you can predict reasonably, if then outcomes. You cannot be strategic if you're not able to use comparison and contrasting to reason and prioritize and anticipate. So that is a key executive function skill. Initiate, to initiate would be, to be able to self-start despite the presence of complications, to be able to self-start, despite things like fatigue, boredom, stress, pressure of having other things that are also a priority, to be able to overcome a certain amount of inertia. And it's perhaps more commonly you could refer to it as the ability to be motivated, but that's not entirely the only way to think about it. To initiate is to actually motorically begin a process.

I see that I've listed inhibition twice, I guess twice is better than none at all. I want to move into shifting, which is our ability to adapt, to stop what's not working, to turn our attention and to notice that there is a problem. And then to reengage, generating ideas, re-strategizing, reorganizing and prioritizing and then initiating an alternative approach. So can I adapt? Am I able to shift, hopefully, if I've been able to notice? So here I should have put this as number eight. To monitor followed by to regulate. What everybody is hoping is that a person can regulate behavior. It's implied that you can

direct attention and monitor the quality of your actions at any given point in time. Are you aware that you have failed to intentionally focus? Are you aware that you are committing unintentional errors and oversight whether they're accurate, inaccurate, irrelevant? Are you able to monitor and notice that people within your environment are giving you nonverbal cues to shift or adapt? So conceptually you have inhibitory control which is required to stop and plan and run interference. The planning stage where I have to generate options, evaluate them for potential outcomes and relevance and determine what is or is not strategic and priority followed by, I have to be able to initiate and persist over time. And then of course, to self-regulate really implies that I have the ability to notice, I have the ability to employ all of these other EFs skills at once. I am not going to misinterpret, I can generate options and I can inhibit. So if you look at all of these, we have a very complex set of metacognitive skills that require that we are able to define them individually. They are all parsed out and can be evaluated in standardized assessment in distinct manners. And they all come online and mature and develop in different times.

And they do this because there's a massive degree of complexity from a neurologic perspective that is at play here. We are not just talking about aspects of the frontal lobe per se, and we are not even just talking about aspects of the prefrontal cortex. We're talking about underlying white matter structures, myelinated axons moving from cell to cell, connecting and integrating all manner of parietal lobe, occipital lobe, basal ganglia, cerebellum structures, with the prefrontal cortex, with language, with visual-spatial, these networks take years to become fully mature. And so it's highly difficult to really just say, "Oh, well by three, everybody should be doing x." And, "Oh, it's very simple, If you have this diagnosis, "I can tell you exactly "which EF skills you will have difficulty with "and at what exact time." It's a messy process. Generally speaking, what we're looking for is development of the ability of the frontal lobe to plan and initiate, and integrate, orchestrate and regulate movement, whether that's muscle movement, or behavioral movement. If you go all the way to the anterior third of the

frontal lobe to the prefrontal cortex, this is the structure where we're really trying to pay attention to how can I have inhibitory control to regulate my behavior? How can I employ these structures to strategically plan and prioritize and employ a working memory? How can I employ attentional networks to direct my efforts. And all of these come together collectively, to withhold, to initiate, to shift, to override, to conceptualize, and to prioritize. As I said, this is a 25-year give or take developmental span. And a lot of things can do go wrong and yet these collectively are assumed skills for academic, vocational and social expectations.

Neurologically, a lot can go wrong. And this is why so many different diagnoses present with associated executive dysfunction. You have genetics at play, syndromes at play, birth complications, neurologic trauma, environmental developmental trauma, socioeconomic variables, all kinds of things, whether that's from an environmental influence or genetic fluency or acquired medical problems, because we have a brain that's ready to go at birth, but it's highly malleable and highly plastic. And so the kinds of experiences that kids have, do shape our ability to regulate. Hopefully, by the time we've developed, we are able, I've said to my own kids and to students that I teach or to other parents, get your kid through their mid 20s without doing something so utterly life alteringly stupid that they can't recover from it. And honestly, we've all been there.

There isn't a single one of us who hasn't had a complete breakdown of judgment or control or planning. And on any given day or week, we're multitasking, we're fatigued, we're managing four things, life gets messy. But if we can get to a point where we have relatively well developed EFs, hopefully, those can be brought to bear in vocational, relationship, life, academic demands. From a developmental perspective, we look at, I've sort of tried to divide these into key areas where birth to five is your prefrontal cortex is barely online, you are being guided and directed by external monitoring. Look here, notice this, pay attention over here with a massive amount of external structure and external regulation. When you hit the early childhood years, seven to 12, there

begins to be a shift into some internal monitoring, relatively better ability to control your own inhibition and emerging ability to shift back and forth and selectively attend to different kinds of demands and demonstrate some simple, yet very strategic planning. When you hit the adolescent in teenage years, you begin to see relatively mature skills, test wise, for inhibition, for shifting, for more complicated levels of attention and working memory.

And actually some highly complex planning. What is not yet present are the refined, practiced levels of self-monitoring that come with living life and actually having to use those EF skills in the novel, unexpected demands of day-to-day life. And those are where some of the things become difficult. There are a set of slides here for the next, I don't know, seven or eight where I'm going to merely hit highlights, but you have the details and the information within your handouts that you can refer back to. But I wanna move us through developmentally, some highlights for EF skills in infants. The most important thing we can do is to provide predictable routine caregiver engagement. Our goal here is to capture emerging attention and inhibition and rudimentary information processing.

We want there to be predictability, stability, joint attention, some very basic processing, and then we emerge into the toddler and preschool years where, hopefully, we continue to support attentional development, shared and joint attention. We want there to be in preschoolers the continued ability to inhibit certain behaviors. We would love to see a surge in language and working memory. And we're still going to see very non-strategic trial and error approaches, but we need to be doing hands-on activities, observe cause and effect, observe outcomes, explore and strategize, what happens when I pretend and play this? What happens when I get ready to do that? What might I need if I were going to be a pirate and this is the pirate ship? How would I adapt and what kinds of ideas could I come up with? In the early school years, more structure provides for less cognitive demand so that I can focus. I want a continued attention

span. I want to be able to retain and process discrete rules and self-inhibit. And I desperately need language to be coming online and be on target. Because as soon as we hit these older school age where kids are in that third grade shift, if we have language and attention delays at this point in time, things will begin to fall apart. Assumptions are made when kids are at this age, that you have a certain ability to control yourself, you have a certain ability to focus your attention, you have a certain ability to understand the expectations of a classroom. I sometimes hear students, I get a lot of referrals for kids who are at this age where they may have done well in the younger years where a lot of structure is provided, but not now. So language and attentional delays we need to address. That continues for the 10 to 11 age range. The main concern at the teenage level are that parents now begin to wonder and worry what's going to happen? Will this child really and truly grow out of it? I have a lot of referrals from parents for teenagers who might not have even been picked up on a caseload for speech language pathology, maybe are presenting with fairly mild language or social problems, not entirely yet fully diagnosed with anything and yet lagging behind, unable to plan, can't monitor, can't find, can't get, forget things, need constant prompts, constant reminders, and things are really beginning to fall apart.

On the other hand, sometimes a lot of the referrals that I get at this age in the teenage or the even the young adult age, a lot of kids show up with massive amounts, stacks of pages and multiple prior assessments. But people have been so busy trying to handle the fundamental problems. You have an autism diagnosis, ADHD, a language disorder, anxiety disorder, depression, obsessive compulsive. Truly, by the time someone arrives with maybe a 17, or an 18-year-old, life's been too busy and other priorities have taken place. And now we're able to think a little bit about the executive function component. And so, you get to this world of, there's a disconnect really between legally turning 18 but neurologically, that brain is absolutely not yet fully mature. And I think as we move into the next couple of decades, there will be some interesting conversations about what neuroscience tells us about being neurologically mature versus the legalities of

that. Okay, profiles then, I try whenever I first get a referral and begin to have a conversation with parents or teachers or whomever might be referring other professionals, I try to begin immediately to think in my mind, what kind of profile do I think I'm seeing? I should say, although there's a massive amount of literature that tries to describe the executive function deficits associated with autism spectrum, associated with ADHD, associated with language impairment, anxiety, developmental trauma, depression, schizophrenia, bipolar disorder, fetal alcohol syndrome, failure to thrive, low birth weight, premature birth. Pick any disorder you'd like. You will find tens if not hundreds of articles that have attempted to define and describe the associated executive dysfunction. At the end of the day, I try to look at maybe five or six key profiles, one of which, if we want to give it a name, the Wanderer, this is someone for whom, put all of those other diagnoses aside, I just wanna clear the air for a minute and I want to find out, is this person's fundamental problem rooted in inattention, internal distraction, and poor awareness?

Because if I have those types of executive function problems, I'll be addressing their therapeutic needs in a little bit different way. So anybody presenting to me with an ADHD diagnosis, auditory or language processing disorders that might make it difficult for them to not only attend to, but accurately process and retain information, along with autism spectrum disorders, social cognitive communication disorders. So, this is the kid for whom the problem begins with difficulty attending, constant prompts from others to focus on this, look over here, redirect your efforts to this, don't be distracted by that, and because of inattention, therefore, also they present with poor working memory and so difficulty remembering to do things in advance, difficulty recalling what was said, what was explained. If this is the fundamental aspect, I am going to try to focus on attention and awareness. On the other hand, particularly in the realm of individuals who present with diagnoses on the autism spectrum, with social communication pragmatic disorders or a nonverbal learning disability. The key problem I see here is a lack of accurate self-awareness, not just poor theory of mind, not just

poor perspective taking for others, but this also falls back into having difficulty accurately appraising your own set of strengths and weaknesses. There are this particular population, genuinely sincerely will come to the table with a very poor recognition of actually even needing any help. They may verbally tell you I have accommodations, but the answers are so surface level. It's because I need to do my best, it's because I'm trying really hard. It's because everybody needs help now and then. But if you want the shift to self-determination, self-regulation, self-driven use of strategies, you've got to overcome clinically deficient aspects of awareness. And honestly those have to do with specific neural networks that are just not functioning in quite the same way. Or I might look at a kid and I might see a person who has reasonably good attention, has reasonably good awareness and appraisal for their deficits, but absolutely cannot generate a strategic plan. So this is a kid who might, in fact, know exactly what is expected, may have earnest sincere diligent efforts, might actually initiate and persist well and work with focus.

But the problem is, the plan is not viable, the plan is not strategic, and therefore there's an inefficiency to this work, frustration builds up, I can't generate other options, I can't come up with other ideas, I have poor fluency of ideas and options. The fundamental problem with this particular profile goes back to very high level language and reasoning. If, therefore, in order to, because of, in addition to, sometimes, always, usually, however, with the exception of, therefore, these kinds of syntactic structures to subordinate, coordinate, to generate, to represent relationship of causation. Kids with very high level language disorders, often in the adolescent years, often have already been discharged from a school SLP's caseload, and I understand that, I mean, caseloads are often far more than any one person can handle. And if this kid is doing relatively well, they may not be continued for services. So, reasoning and high level language seem to interfere greatly with planning. Or I may see a profile of a kid whose main overall EF boils down to an inability to start. So if you think about, we might often, perhaps more often we see a profile of the child who is so impulsive, they absolutely

cannot stop, the impulsive, hypermotoric, hyperverbal, constantly on the go, that's its own problem. On the other end of the extreme is the persona who cannot initiate, lacks urgency, is very much prompt dependent on others to get started, to anticipate time, to recognize how long a task truly will take to them break those time increments down into smaller components, back things up and realize that I'm going to have to start now, in order for that to happen in three weeks. I often see the person with initiation deficits might also present with vague reasoning and very broad global plans. Well, I've had college-aged students that I've worked with who will say, "Well, the only thing I really need to do "is just print the paper." And when will you start that? "Well, just the day before it's due." So they need help with planning and awareness in order to drill down to highly specific plan steps that start with an action verb, that start with time estimation. Because otherwise, we continue to have the problem of lacking urgency and not being able to fully estimate.

And then of course, the person who has poor inhibitory control, hyperactivity, impulsivity, this is going to interfere with monitoring and awareness. If you're not able to stop long enough to direct your attention, you won't realize what's been said, you won't hear all of the instructions. If you can't inhibit long enough to monitor your work, you won't catch the unintended mistakes, you won't realize the errors that you've made. If you can't inhibit long enough to pause for a moment, you may well start without a plan, fail to anticipate consequences and not realize. Or, I also see the inability to shift. And so if this is the key area, I might see persevative behavior, resistance to adapting when an unexpected change occurs, or unable to adapt and shift time. And so this person might need a lot of work generating alternative options, thinking flexibly, thinking divergently, being able to recognize a moment where it's necessary for me to stop, shift, adapt, and so forth. So I try to focus there because when I get referrals, or questions or emails, people tend to land on, "I think it's an EF problem, "and what do I do about it?" And the answer really I start with, okay, let me ask you some questions and get some more information about this child. What are

their underlying diagnoses, if any are known? Have there been any prior assessments? What kind of language skills are available and onboard for this person to make use of? What kind of social cognition skills are available and onboard? Are there any complex learning profiles or learning disabilities? Because to be honest, most of the time, I end up doing two if not three diagnostic questions when someone comes here for an assessment. And I'll be honest, when we have a clinic here and when we're running someone through for an assessment, behind the scenes, I might be communicating with the parent or educators by phone or email, trying to triage the problem, ask questions, gather records, make a review of records, understand the concerns and the priorities. What are the priorities and goals for that family in this moment in time?

And sometimes my job ends up being, actually I may end up doing a language assessment and only a cursory assessment of EFs at that point in time. Or on the other hand, I might spend all of our diagnostic time focused only on EFs, it really just depends. So I've put a few case studies here just to give you an example of the kinds of things, this is Tanner an eight-year-old one month second grader. Mom is an SLP, actually, and brought her son here quite worried about behavioral problems, adapting and adjusting to the classroom demands. Diagnosed with ADHD, the hyperactive, inattentive aspect, OT has identified fine motor and hypersensitivity issues. Mom is aware of difficulty with spelling and decoding. And this is a child who had briefly been on an SLP caseload but then discharged.

Only scored low average to slightly below average in two subtests for listening and inferencing. This child had a 504 plan, and I'm not making these phrases up, the goals were to increase frustration tolerance, manage attention, limit impulsivity and keep his hands to himself and recess. So, what I really wanted to do was identify for this eight-year-old what about the language and have anybody been able to take a strong look at his language skills? And the secondary question was, okay, I can already tell you we have an EF problem. I understand we have impulsivity, we have inattention, I

can tell you we're going to, therefore, have deficits in working memory. I can tell you from description and reviewing his records and listening to mom, I already know that we have poor monitoring and poor regulation and difficulty with strategic planning. I know the answer to the question is yes, there are EF problems. What I want to try to do is back up for a second, functioning as a speech language pathologist and try to give a really solid answer about language because there have been some concerns expressed there and then establish some information about his executive function profile. And so he was diagnosed with a language processing disorder. And, let me see which, yeah, I have my third case I go into a lot of detail. Tanner's case I've just given you some cursory. But Tanner's diagnosed with ADHD, the inattentive, impulsive, hyperactive profile, his language processing disorder, multiple sub tests and multiple indices and three to four different language assessments. He is unable to explain, organize, compare, contrast, do basic synonyms, antonyms, analogies, define has syntax organizational issues, unable to explain.

And from a receptive level is also demonstrating retention, recalling and inferencing deficits. Referred out for an evaluation of dyslexia, as well, and hypersensitivity. So the bottom line here, yes, he has executive dysfunction because executive dysfunction is concomitantly associated with ADHD and a language disorder and dysgraphia and dyslexia, with all of the above. So the question for him was more a matter of making recommendations for him returning back to school and receiving the kinds of services that he might get to build up both language and then to introduce an emphasis on structure for his executive functions and accommodations. Kyle was a 17-year-old junior at an alternative school. Brought initially with the question, does he have autism? Multiple challenges and I think his case history I think we had about six inches worth of single spaced papers, he'd been evaluated by so many people since he was maybe four. ADHD, impulsive, inattentive, disorganized, late, minimally aware, depression, anxiety, emotional disabilities, suicidal, at least times twice, acting out, externalizing behaviors, difficulty understanding implied expectation and nonverbal demonstrations

of what others or situations required and not really knowing why he needed support. So we tried to focus in this case, the primary question was, what about his social cognition? And we ended up ruling out, he failed to meet criteria for autism spectrum disorder. We did diagnose him with a social pragmatic communication disorder. And then secondarily evaluated his executive function skills to try to get a better picture of how well can he plan? How well can he monitor? How well is he able to shift or adapt or engage? So, we have an ADHD profile with working memory deficits, difficulty planning, requiring visual supports, he has poor shifting and monitoring, he needs support organizing and initiating. So our test battery literally is then populated with assessments for working memory, assessments for planning, assessments for shifting, monitoring, initiating, those are EF based assessments.

Also that diagnostic spent time focusing on using social pragmatic and social communication assessments so that we can try to substantiate and come up with, okay, he does indeed meet this diagnosis, but we're ruling out autism. And so does he have executive dysfunction? Yes, because executive dysfunction is associated with features of depression. And there's an environmental factor that further contributed to disorganization and unpredictability in the environment. There are executive function deficits associated with social pragmatic communication disorder and ADHD. So our goal will be to try to understand what is Kyle's profile?

And each time I make an assessment, that's my question. What is Tanner's EF profile? What is Kyle's EF profile? What is Matthew's EF profile? Because I can't really give a recommendation to the question, well, what do we do about it? I can't really talk about what do we do about it until I understand that kid's fundamental profile of problems. So I need to know, what kind of language do you have on board? You're 15, do you have language that's adequate for you to reason, plan, predict, anticipate? What kind of attention do you have available? Do you have sufficient attention to monitor your task effort? Do you have sufficient attention to monitor your behavior socially? What

about your self-appraisal? Do you have an accurate sense of your own EFs skills? Are you able to articulate strategies you could use? And do you know when or why or how to even use them? Do you have enough language to even generate and write anything in a planner? And if you wrote something in a planner, do you know how to divide that task into strategic plan steps? Can you estimate time? Could you break it down and back time up to know when to put those statements in the planner? Do you have adequate ability to initiate and persist? Do you have adequate ability to inhibit and/or delay? So how to answer the question, what should I do about this 15-year-old kid? Is fraught with, well, let me ask you more questions and let me see what I can do. Here's Matthew. And he ended up having to, I brought him back for two assessments. And described as a star athlete yet very naive socially, already with multiple diagnoses including ADHD, anxiety, math and reading disabilities. Although he's 15, his reading is at a fifth grade level. With both dysphonetic and dyseidetic dyslexia as well as dysgraphia. He has IEP services for math, reading, English. Support and resource rooms, accommodations and social work services.

Parents and teachers alike report multiple concerns that seem to be tied back with and concerning language. Difficulty understanding spoken information, difficulty retaining spoken instructions, the need for constant repetition and simplification. Failing to get jokes, taking information literally, does not understand classroom lecture material, cannot explain or formulate verbal responses or written, often giving up simply saying, I don't know or I'm stupid. And those were reported by both parents and teachers. However, only evaluated for the first time last year by an SLP and found to be ineligible. I should say that I live and work in a relatively rural area part of the country and so we pull, our clinic does, we pull from a lot of smaller school districts that may or may not even have adequate support or resources. And so it's not to say that this is typical, but at least for this geographical part of the country, this is not uncommon. From an EF perspective, a lot of concerns were also expressed, virtually absolutely dependent. So here's a 15-year-old, who, almost 16 actually, requires multiple texts daily from his

mother, to remind him of the schedule, where to go next, what happens after school, which practice to go to, when somebody will pick him up. Is dependent on others for organizing papers, bringing things home, tracking possessions, no time estimation, no awareness and monetary, no self-checking for work, still a sitting down with a parent every evening or resource room teacher or an aide. Let's look at your work, let's check for this. Living pretty much in the moment, not anticipating problems, unable to predict needs, does not work strategically, has a planner but is dependent on others to literally tell him what to write and where to write it.

So, diagnostic questions, one I wanted to look at was what about his language? And we did an extensive test battery to try to look at this and move beyond some of the core assessments that the SLP had given in the year prior. And tried to really evaluate that and diagnosed him with a language processing disorder and referred him for auditory processing evaluation as well. The secondary question I was concerned about had to do with his social cognition. What is this social naivete? Is it rooted in something that's diagnosable or not? Is it primarily due to deficits in attention and very concrete language such that he's not able to apply social language? What about that? And finally, the question of what about his executive functions? So those were my three diagnostic questions.

And then we began to try to review some of the records. The school based SLP had, at her disposal, the Peabody, the expressive vocabulary test and the CELF-5 and came up with some low average, some perhaps areas of concern. But overall, these were her findings. And so he was not found to be eligible. When we were able, and I realized working at a clinic at a university, I understand that I may have access to far more tests and I certainly have access to a three-hour block of time on a Friday, where I can sit down with two graduate students and look at this kid. So this is not the norm, this is not reality. And I realize that but we try to provide a document, I might write a 25 to 30 page chapter on each kid. I try to make something out of these diagnostics that can

sort of travel with this child for the next two to three years before maybe having them come back in a couple of years for a follow up. I try to provide assessments and interpretation for school-based professionals, where I can fill in gaps. If I know you don't have access to these tools, let me try to see what I can do here. So we were able to use the TOAL, test of adolescent and adult language, and the TILLS, some sub test of the TILLS and components of the OPUS, oral passage understanding scale.

And so look at these things, listening comprehension on the TILL has a scaled score of two, following directions scaled score of six, for the OPUS scaled score of 81, really falling apart for not just literal comprehension, but when you are required to infer or deduce what is implied but not stated, we really are falling apart. And then we also see difficulty with higher level adolescent language development. I can't deduce relationships between concepts. So my spoken analogies we have a scaled score of three. Combining information using subordinating or causative or relationship types of words, scaled score of three, and my written and general language composites are quite low. And then the student version of the FAVRES, the functional assessment of verbal reasoning and executive system. He is working so quickly in an impulsive manner and yet the accuracy for his tasks a standard score, that's a standard score, not a scaled score, of seven where mean is 100. Rationale scaled score of zero, and reasoning subskills standard score of 54.

So the FAVRES if you're less familiar with it provides four functional yet complex tasks, involving having to prioritize and determine needs for a complex overlapping schedule. And then working for accuracy and then providing verbal and written rationale for how and why you chose, what's the most or least important. What else could you do? How would you handle it if x, y or z happened? And how to manage that. And so you're able to look at the time factor, the accuracy factor, and rationale. So this gives an overview, you have to employ all of your EF skills to monitor, check, evaluate, sort, plan, prioritize, generate ideas, strategically think, all EFs are applied. Secondarily, all of your

higher level language skills must be applied to read between the lines, to draw conclusions, to generate a written defense or rationale and to verbally explain and define. So I really like the FAVRES. And then the social language development test for adolescence. You can see as well for Matthew where he struggled in this tool. An inability to make inferences, an inability to interpret irony and or social language. He really struggled. He had absolutely surface level, literal versions and interpretations, and was really falling apart with aspects of humor or nuance or how to navigate social situations. From an executive function profile, we used BRIEF-2 which gives t-scores with a mean 50, standard deviation of 10 and 1 1/2 deviations above the mean. So t-scores of 65 or above are clinically significant. So this reflects parent response, teacher response, and then self-analysis. And then if there are different scales for inhibit and self-monitor, which comprise the behavior regulation index. The shift in emotional control scales comprise the emotion regulation index.

And then initiate working memory plan, monitor and complete and organize materials, provide us with the cognitive regulation index. The main thing to look at are look at how Matthew rated his own executive function skills. So, how often is this or that a problem on a daily basis? Never, sometimes or often. And Matthew is rating himself as virtually never, perhaps sometimes occasionally having difficulty, but his t-scores are right at or within the mean, at one standard deviation. He really does not report having much difficulty, maybe getting tasks completed. He also sees and identifies difficulty shifting. Look at the discrepancy in the teacher, three standard deviations difference. And not only that, but definitely clinically significant observations that Matthew requires, he almost always has difficulty in these areas. And the same pattern of responses are prevalent in the parents responses. So part of the problem here is that Matthew was not demonstrating the kinds of awareness that he might need, even to realize that he needs support. We also gave the test of everyday attention for children and aspects of the Delis-Kaplan, the trail making, fluency, interference, tower test, for strategic planning and monitoring. The BADS-C, and then of course, the behavioral the BRIEF

that I mentioned. So collectively, we identified and described his language processing disorder. He has difficulty comprehending and understanding single and multi-sentence and multi-step instructions. So all of these assumed features, it's assumed in the classroom that he is understanding what the teacher says or request. It is assumed that he's tracking and understanding and retaining short lectures and yet he is not particularly for when it is implied, abstract or lengthy. He is not, he may be diagnosed with dyslexia and dysgraphia but never mind that he also does not have the language to semantically explain, clarify, compare or contrast. And if that's the problem, he is also unable to demonstrate the use of very complex language to relate conditions, causation, prediction, outcomes. He is not able to use complex syntax and semantics to form arguments or predict how to be strategic. The main complication with high level language problems is that it impacts reasoning which impacts planning which brings you right back to just trial and error. And of course, the aspects of irony, sarcasm, humor and other social language. These are some excerpts from some of the paragraphs, forgive me I have a one and a two and some of those are misnumbered but we try to talk about, he presents with executive dysfunction.

So we have executive dysfunction associated with multiple coexisting diagnoses of ADHD, language processing disorder, dyslexia, and dysgraphia and I refer the reader to the initial report where I described in detail all of the scores and summaries and interpretations from his language and social communication test scores. And then when he came back for the second time, we focused more on doing his executive function profile. So, he has difficulty in interpreting nonverbal social communication cues accurately, and difficulty using language for social situations. I did recommend in therapy, it would be useful to further evaluate perspective taking skills to really determine how well he is accurately interpreting face, gesture, body, prosody and theory of mind. I also was concerned because throughout, he demonstrated such significant verbal working memory deficits and difficulty learning new information. When I went in on one of the second time he was here and tried to summarize things

into five key points, it required such extensive repetition and visual diagramming, and rehearsing and simplification that I truly also have concerns for, just his actual memory, short-term memory and new learning capacity. So those were things we tried to pay attention to. And then I've excerpted some of the paragraphs where I attempted to explain his executive function profile characterized by so here the ultimate conclusion is, I really tried to pull everything together and talk about, here is this kid's executive function profile, because this Matthew's will not necessarily be the same as Kyle's, it won't be the same as Tanner's, they're all going to be different.

So for Matthew, a lack of insight, and accurate self-appraisal for his own strengths and weaknesses, deficit sustaining and shifting attention for auditory and auditory visual, impulsive initiation of tasks with less-than-strategic efforts, impulsive initiation of social behavior without attempts to analyze or interpret first, difficulty initiating and generating possibilities, ideas and strategies, and the commission of inadvertent errors in task performance due to overlooking and inattention and finally, difficulty shifting efforts and responses. Really, my goal is to try to explain to somebody if you read nothing else, skip the first 20 pages.

It's there if you need it, just look at the back page and try to understand Matthew as a kid who, at the end of the day, this almost 16-year-old breaks down crying. He knows he's mortified, he feels stupid, he is embarrassed. Here's a kid who was a star athlete, would be asked to dances and proms, wanted to be socially acceptable, and then all of those social nuances would interfere. And the social connections would disappear. And then the students would begin to remember and realize that he needed a massive amount of help. And then it comes out that he's only reading in a fifth grade level. And how does this 16-year-old reconcile on the star quarterback but I can't read? And even the coach adapted to help him learn and memorize plays, other players were bringing things in, other players were calling things and telling him because, we wanna shore the kid up. So, on the one hand, he has a lot of positive reinforcement on the other, the

rest of his days when he's not on the playing field, life goes to hell. So let's try to explain what's happening and figure out how to address it. Attention is a weakness overall, low-average to below average performance in selective, sustained and divided attention. Strategic planning and organization, he works diligently but inefficiently, he starts rapidly with no attempt to have any potential plan or consider whether or not it is even relevant, much less strategic. Well, let's talk about initiation, little to no difficulty initiating, in fact, sometimes being impulsive initiating, beginning before he had even perhaps had time to plan. If someone gave printed instructions, he took little time to read them and of course he has difficulty reading. Self-monitoring, initiate and completes work without checking, without monitoring. Unintentional errors and rule breaking. But despite that he worked with the assumption that everything he did was in fact correct. He did not double check, he did not use compensatory strategies. His perceptions overall was that he did well throughout until we began to talk through some of the different problems.

So what are the diagnostic challenges? Well, there are many. We still have to figure out how well or does a person actually have accurate self-awareness and appraisal, because clinical deficits and appraisal are a known EF profile for many social pragmatic autism spectrum types of diagnoses. I still have to figure out, we all have to answer the question, what about language? What kind of complex language and reasoning and predicting, and explaining skills are available? I need to know that so that I can try to talk a little bit about planning, and organizing and prioritizing. I'd really like to know about language because I might want to use self-talk as a strategy to compensate. I need to know about not only monitoring, but I need to know about social perspective taking, because I'm going to need accurate social interpretation in order to apply my EF skills in order to regulate my social behavior. So, is it a social problem, or is it an EF problem, or is it both? So there just are a lot of things for me to try to pay attention to. I'm gonna keep moving I'm mindful of our time as I have this on this slide, time is not always on our side. I think overall, parents tend to notice the EF

deficits perhaps before schools do. It's not until maybe the middle elementary grades where classroom support draws back and assumptions are made that then perhaps teachers begin to notice. But by that time, parents are already a little bit panicked and worried. And there is the other issue of what do we even call this problem? There is no one single diagnostic definition for executive dysfunction. Should we call it executive dysfunction? Should we call it an EF disorder? Should we call it dysexecutive syndrome? Are they merely EF deficits? Does this rise to the level of a standalone diagnosis or is this associated with and concomitant to. So I approach it with the phrase, concomitant executive dysfunction. Unless you have a typically developing brain that has suddenly encountered an acquired traumatic injury precisely and only to the prefrontal cortex and those neural networks serving it, you really shouldn't be saying, quote, the problem is only executive dysfunction. Really what we need to be doing is painting the broad entire picture. Here's a kid with a receptive and expressive language disorder and concomitant EDF.

Or here's a kid with autism spectrum disorder and associated affiliated EDF or autism and language and ADHD, or whatever the various diagnoses may be. I like to try to put it into context that we're not simply talking about an EF problem hardly ever. Of course, I realize other diagnostic challenges have to do with time and money and eligibility criteria And overlapping things. So what are some of the rules? I always I'm thinking about whether or not I'm evaluating only EF or also EFs with language or I might be doing EFs with more of a social perspective. Or what if I'm attempting to do all three? And how on earth will I balance the demands and the priorities of all of these areas? So I try very hard to gather up any and all records first, I don't need to repeat something another colleague has already evaluated. I want to try to augment that and fill in any gaps if I possibly can. I want to try to provide a profile that will ultimately clarify where does this child stand right now? I have an eight-year-old, where does the eight-year-old present with regard to his or her EF profile? Can we make sure we don't have any needs here? Can we make sure we've identified the needs here? And then I

try to prioritize. So, the first thing I'll be looking for are primary disorders first, I want to be sure I've ruled out whether or not we have language or other things going on. And carefully I wanna identify can we understand, explain, organize, do I have enough language to support reasoning and planning? And social perspective taking and then I'll pay attention to the EFs. And I really try hard to let down a lot of records, get information, use diagnostic questionnaires and interviews. In so much as you have available, it's best to try to use a multi-dimensional executive function assessment. I combine informal with standardized. I'll combine standardized tests that are mostly looking at what we might call lab based measures that you really don't ever do in the real world. But I also want to combine that with more ecologically valid assessments that have face value.

And I really also need to try to pay attention to each of those sub tests. What exactly am I evaluating? Which EF skill is being assessed and in what manner? I also, if I'm doing something informal in particular, which I'll talk about in a second. If I'm informally evaluating executive functions, I cannot insert myself as the frontal lobe, I have to allow a certain degree of failure, struggle, planning or lack thereof. I have to allow for a certain degree of can you generate a plan, a strategy, a solution? Are you going to notice and fix errors or not? And so we have to override the urgency to try to help. Of course, if it's standardized, then I'm following protocol.

And then I try to build an EF profile. I'm going to keep going. In terms of the types of assessment tools, you can look at standardized questionnaires for executive functions as they're used in the daily environment. And that's where you're getting ratings from parents, teachers, the child, if they're of old enough age, to provide some insight in terms of all of those different EFs skills. So the BRIEF is a common example of that. I'm almost always trying to get those. I do like to use a mix of standardized tests. I want an attention assessment. I want standardized scores for working memory. I want standardized scores for planning and inhibition, and shifting. So as much as possible,

I'm going to use those types of tools. But I also I'm going to look at their work samples. And I might be pulling in some informal, novel problem solving tasks. I'm going to move beyond, you've got a next set of several slides that are available for you to use as a reference, these list different kinds of assessment tools for the various executive functions. And I have also list various standardized tests that I like to use for higher level language and reasoning. Here are a sampling of standardized questionnaires for executive functions. I'm also giving you some sources for non-standardized diagnostic interview questions that are so very helpful in terms of where should I start, and what should I ask? In addition, I'll highlight, I've written for you, I mean, you can write your own interview or diagnostic questions. But these are things I've just put here for you. So what might you ask the parent or your colleague in the hallway as you're having a conversation about someone.

So here are questions on attention and inhibition. Questions on determining a goal or a strategic plan for behavior. Questions I might ask to get insight on how well the trials can initiate or shift. Questions that I routinely ask for how well the child might monitor their actions or regulate their behaviors. So those are available for you. And also then for these next couple of slides, I try to do a non-standardized assessment in addition to a sampling of those that we've looked at briefly before. I try to generate some kind of complex, novel, yet achievable task that the child will need to solve.

And then I want to observe how or if they can generate a plan, how or if they can develop solutions, how or if they are able to initiate their own efforts in a timely manner. Do they independently attend to and monitor and evaluate the quality of their work? Do they independently shift when it's apparent that something is no longer working? So I call these functional hands-on novel tasks. And one that I tend to use a lot for maybe teens would be making trail mix. I have slides on that in this one. I believe I talk in greater depth on how to do novel problem solving tasks for diagnostic purposes and therapeutic purposes next week in the second webinar. But whatever the task is, you

want to pair that up with some kind of observation form that will help you capture the EFs skills that you are observing. And so here is a sampling, or you could obviously make one up yourself. Basically, you're asking yourself things like, are they attending to the task? Are they shifting efforts? Do they initiate in a timely manner? Do they generate a strategic approach? Do they recognize when parts of their efforts are falling apart? Do they inhibit? Do they shift? So if I'm trying to pull together a complex then diagnostic plan, it might focus on language, it might focus on social cognition, it might focus on executive functions. My main goal is, what kind of diagnoses are present, if any? What are they? And then I want to move into explaining and describing that particular child's EF profile, and I want to work through all of the different individual executive functions to try to describe.

And I think a lot about which assessment tools should I use, I try to ask as many preemptive questions as possible so that I can focus if I only have this one day with you, this I think is turning out to be mostly a language diagnostic with a little bit of EF, or this one, I think, is turning out to be an entirely EF assessment. I already know A and B, I can focus on this. And really, I also try to think about, well, what are the fundamental goals? What are the parents really stressed about? What is school significantly concerned about? What is it that I can try to do here that will add to the story and augment what people have already identified and already tried, I don't want to be redundant, I'd like to try to provide something useful.

So complications, because obviously everybody wants an answer to, well, the question is, what do we do about it? There's no easy answer. Treating executive dysfunction is a marathon, it's not a sprint. The focus tends to shift every couple of years. Because for one, the development of these skills is such a protracted, prolonged process. So what we might prioritize at five may not be at all what we prioritize at 10 or 15 or 20. So there's a certain amount of reevaluation that goes into answering the question. And depending on if the, I go back to the priorities and the profiles, am I looking at a kid

whose main profile is in attention and impulsivity with poor language? I'll deal with that differently than if the priority is a 15-year-old who cannot initiate, who has no sense of urgency, minimal self-awareness, very poor social cognition, and is prompt dependent, that's a different profile. And the answers are very different. Sometimes, there may be an underlying need for me to pay attention to language therapy. If that particular child's EF profile has more to do with, I can't reason, I can't predict, I can't plan, I can't self-talk, I can't self-regulate, I may have to focus here. Or I may have to spend a great deal of time, therapy may focus on perspective, taking social thinking, social awareness, social analysis, just to be able to feed the frontal lobes some kind of reasonably valid social knowledge, so that I can then try to regulate what I understand. The other complication is so many different underlying etiologies. It's very difficult to come up with a snap quick judgment. I couldn't name one test, I couldn't tell you, go by this test. I couldn't say that's the only one you need. Some EF tests require a lot of visual-spatial and hands-on manipulation.

For example, the BADS, you're employing your executive function skills to visual, spatial, manipulative hands-on tasks. But you're also having to manage a lot of complex language rules. Other tests such as the FAVRES are requiring that you employ all of your EFs to mostly, if not solely, a heavily language-based demands. Other EF tests are non-functional lab-based tasks and so that's also complicating. And then, adding to this, the degree of difficulty and the nature of deficit, manifests differently in different environments. It's hard to compare the structure inherent in your school day, with the differences in structure inherent at home. We all don't live at home with a bell that rings at every 42 minutes that signals now it's time to stop doing the laundry, now go feed the dog, walk the dog, make the dinner and find out what the kids are doing. Our lives are functioning differently. And so I expect to see different profiles reported in school to some degree than at home. So there really is no one particular answer. So what exactly should we be doing? In general, there are a number of different ways to conceptually think about what we could do. Almost always I think it's very important

that people understand the nature of the problem. If we can get everybody who's working with this particular child to be on the same page, have the same degree of understanding of the problem, be able to shift away from descriptors such as lazy, doesn't care, doesn't try, isn't working hard, is acting out, should behave better, should try more. I mean, there is a time and a place for that. But if the problem truly is an underlying executive dysfunction, it's an inability, not a willful refusal. So, can we try to provide a profile and a description of this child's EFs skills. Then we can advocate, then we can explain and then we can try to move on to some other areas. No matter the profile, another separate different approach would be to manage the environment by increasing organizational structure, increasing organizational support, decreasing the level of demand. So we minimize cognitive overload, try to infuse support and modeling, and coaching, and structure. And this is sometimes difficult to kind of work because so many people can still perhaps be hanging on to the idea that you shouldn't be helping a 14-year-old that much.

And so, well, maybe their 14-year-old executive function system is really functioning more like a 10-year-old. Maybe we really need to back things up and provide structure to build success, to work gradually towards internalizing and self-regulating, which brings us to another separate area which is developing awareness. Social awareness and self-appraisal really does not fully mature until the end of adolescence and even into the early 20s. And so this is fraught with its own challenges. So sometimes I'm working on social cognition and awareness. Sometimes I'm doing mostly language therapy, because I have an end goal of building up to planning, predicting, comparing and estimating. On the other hand, sometimes I'm literally working on the development of and the practice of actual EFs skills. Sometimes that may be the actual goal of therapy. Let's learn to practice inhibition. Let's practice planning, let's practice shifting. Let's practice fluency of ideas. And finally, there are a lot of different ways that we might need to queue and question and elicit insights such as Socratic questioning or discovery learning or guided discovery, or queuing that works from a least to a most

hierarchy, rather than telling the answer, trying to elicit insights, trying to elicit the use of executive function skills. Okay, I'm gonna stop talking so that we can try to entertain questions and so forth.

- [Amy] Thank you, Jill, sorry about that. My unmute was a bit slow coming on there.

- [Jill] Oh, sure.

- [Amy] I am looking through the questions. And let me see here. One of the things a couple of people were asking something along the lines of, who else in the schools might be diagnosing, assessing, working with executive dysfunction? Someone mentioned the school psychologist specifically, how does the overlap work there, and is it more of a collaboration or is it separate duties?

- [Jill] So, much of what I, and I'm speaking now from a background I've done about 30 postgrad hours in school and clinical psychology and so I'll try to inform from that perspective but also just from consulting and collaborating with those professionals. I see a lot of school psych that are, perhaps they're using the BRIEF as some assessment. They might be doing a lot of behavioral analysis, and of course, focusing on learning profiles and learning disabilities, and academic achievement. And slowly perhaps a little bit increasingly, I see some, a school psychologist who do more intensive assessment of EFs. But by and large, I'm seeing families who are going to child neuropsychologists who specialize or child clinical psychologist who specialize in evaluating EFs. Or coming to SLPs who specialize in evaluating EFs. And I think it really just depends on where you might be located, what you have access to.

- [Amy] Okay, very good, thank you. We have a couple of clarification questions. One of them is about the FAVRES assessment tool. What does the acronym stand for?

- [Jill] Okay, functional assessment of verbal reasoning and executive, something. Skills, we'll go with that. But if you can get through all of that, you'll find it.

- [Amy] Got it. Someone wanted a clarification about what a 504 plan is, you had mentioned that earlier.

- [Jill] So not a full blown individualized education plan but something that provides for accommodations or supports to be given to the students in the classroom. But not coming fully to the level of having intervention or therapy per se.

- [Amy] Okay, very good, thank you. This is a really interesting question. Someone's asking in kids that have a mental health diagnosis like depression or anxiety, is executive dysfunction considered to be a symptom of that mental health disorder, or would it be an entirely separate diagnosis?

- [Jill] Okay, I'm going to say not so much a symptom of in so much as executive deficits are not diagnostically required as symptoms of depression. So that's not a diagnostic requirement for being identified as having depression. On the other hand, it's a concomitant feature that's often identified. So anxiety, there are certain profiles of certain mental health disorders that part and parcel come along with problems in executive functions, also. I really don't know if I'm getting a clear answer, not a symptom but an associated problem.

- [Amy] Got it, thank you. I'll let the audience member can ask for clarification if they need more information.

- [Jill] Sure, absolutely, yes.

- [Amy] Someone has asked, you mentioned that you work in a rural area and the staff shortages are always an issue. Have teletherapy services been considered and what's your impression or your opinion on perhaps treating executive dysfunction via telepractice?

- [Jill] So the first part no, not necessarily telepractice's not widely used in this particular area. The second part of the question, I suppose, in general, you need to be as effective as possible through distance therapy, sometimes I guess I would worry a little bit about how the nuances of doing EF therapy might translate to that venue. It might be easier if my focus is on language or social, may be less easy for me to do teletherapy if it were on some of the more EFs skills or building awareness skills.

- [Amy] Okay, someone's asking for clarification here to, are you saying that executive dysfunction does not exist as a standalone diagnosis, but only alongside other diagnoses?

- [Jill] Well, yes, I mean, it's not necessarily its own standalone in the DSM per se. On the other hand, if you go into the world of medical speech pathology and acquire disorders, I can have someone I would diagnosed with frontal lobe syndrome, or frontal release, because I have an acquired disorder, but by and large, we're not looking at, from a developmental perspective, kids who are going to show up and we say, "Oh, nevermind, your actual problem "is executive dysfunction. "This other stuff, you don't really have language, "you don't really have social." It's a concomitant clustered aggregate problem because it ties back to it's present in language impairment, it's present in autism, it's president in ADHD. So it's a concomitant feature from all of the above.

- [Amy] Right, and I'm sure that next week when you're talking about the relationship between language and executive functions and the use of perharps language

strategies, like inner speech, self-talk, for planning and regulation functions, I'm sure that you'll be able to go into that a little bit more, as well.

- [Jill] Yes, I can.

- [Amy] I'm going to try to hit a couple more questions real quick here. This is a timely topic. Do you see executive function deficits in kids who are playing impact sports like football, soccer? Do you notice changes in executive function abilities? With, I'd say with concussion or perhaps multiple concussions?

- [Jill] Yes. Yes, anytime you have multiple episodes of trauma that have repeated concussive events and changes that impacts the ongoing development of that particular brain, and there are reasons for why we have continued protocols for monitoring and evaluating those things and laying out and allowing the brain time to heal because it interferes with the fragile neural networks, all those white matter tracks that are trying to wire up and myelinate between all the different parts of the brain. So, it's a problem, sure.

- [Amy] And do you think, this might be a generationally delicate question. But someone's asking here about the amount of technology in use these days, constant use of phones, quote unquote, multitasking, etc. Do you think that plays a part in executive function difficulties?

- [Jill] Okay, my personal opinion is yes. Really, I'm basing this on there's some studies that are coming out and showing discrepancies and differences in things like attention and working memory and so forth. But what has to happen to really challenge the development of your executive function system is that you have to do real things, with real consequences, with real stuff, that require real plans, real implications, and if you're living in a theoretical world where everything is two-dimensional, and all you

really need to do is just keep playing, get a new man, get a new player, go find a new world, level into another place, restart, reboot, where there really aren't any actual consequences. And it also detracts from the ability to read the actual world and the nuances and the subtleties of interacting with actual people and looking at the actual implications of what you do. So, our brains are developed and rooted in the use of tools which links to the use of verbs which links to the use of language which then links to the link of reasoning and prediction and anticipation and outcome. And it's, I feel, very important that we do, we explore the world, we explore cause and effect through play and movement and pretend and social interaction and real problem-solving.

- [Amy] That's a bit of a segue into our last question which, as you have stated, executive dysfunction is often concomitant with other delays and other deficits and they come on at different times in development. So, one of our audience members is asking, at what point like elementary school, middle school, high school in a child's long-term treatment plan, do you think it's important that we be specifically testing for executive dysfunction?

- [Jill] Well, some of the standardized tests are developed and normed for as young as the two-year-old. So you can differentiate certain EFs skills in preschoolers. There are plenty of studies that evaluate EF profiles in preschool children with language impairment. Just looking at how they are beginning to develop. I think the answer is it's important when it becomes a significant problem. I mean, I've had kids who've shown up at the age of 17. And I've had kids show up when they're five. I've had other people show up in between all ages. So I think if something is outside the bounds of what looks to be typical, and it's problematic, and it's distressing, then I don't know that it's any different than we would evaluate motor speech or language or anything else.

- [Amy] Exactly, okay, great answer. And to a great question. I'm going to wrap it up here. I know that there were a couple of questions that we did not get to. But we do

need to wrap it up in respect of everyone's time. Jill, thanks so much. This was a fabulous webinar today and I wanted to remind our audience again, Jill will be back with us a week from today, if you're not able to make the live presentation next week, as usual, it will be available in a recorded version due to three days afterwards.

- [Jill] Well, thank you very much. And thank you to everybody who was participating today and thank you so much for the questions as well, I appreciate them.

- [Amy] Thanks. And we'll go ahead and close up the classroom. I hope everybody has a great day. All right then, bye-bye.